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TITLE: Methods and apparatus for recycling asphalt shingle material into shaped products

PUBLICATION-DATE: January 31, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
<u>Mischo</u> , Donald J.	Janesville	WI	US	

US-CL-CURRENT: 264/113; 264/119, 264/148, 264/320, 425/308, 425/325

CLAIMS:

I claim:

1. A method for recycling used and manufacturing scrap asphalt shingle material comprising the steps of: a. providing a fine aggregate-asphalt mixture; b. grinding the aggregate-asphalt mixture; c. extruding the ground mixture; d. providing a mold of a desired shape; e. loading the molding with extruded mixture; and f. compressing the mixture in the mold to create a shaped product.
2. The method of claim 1 further comprising the step of introducing granular surface treatment in said mold prior to said compressing step.
3. The method of claim 1 further comprising the step of introducing a plastic liner in said mold prior to loading step.
5. A method for recycling used/asphalt shingle material comprising the steps of: a. providing a fine aggregate-asphalt mixture; b. grinding the aggregate-asphalt mixture; c. extruding the mixture to approximate cross-section of a desired shaped part; and d. die-cutting a shaped part from extruded mixture.
6. A method for recycling used/asphalt shingle material comprising the steps of: a. providing a fine aggregate-asphalt mixture; b. grinding the aggregate-asphalt mixture; c. extruding the mixture; d. forming a desired shaped part; e. softening an exposed surface of said part; and f. embedding a surface treatment material to said softened surface.
7. The method of claim 6 further comprising the step of raising the temperature of said surface to approximately 275 degrees F. prior to said embedding step.
8. The method of claim 7 in which said raising step includes one of (i) providing a surface heating element and passing said surface proximate thereto, and (ii) immersing said surface into an environment having an elevated temperature.
9. The method of claim 6 in which said surface treatment material includes one of (i) a surface texture material, and (ii) a coloring material.
10. The method of claim 6 in which said embedding step includes one of the steps of: a. passing said softened surface under compression rolls to embed surface textured material; and b. heating said surface treatment material and spraying said heated material onto the softened surface with heated compressed air.

11. Apparatus for recycling used/asphalt shingle material comprising: a material staging station having an inlet to receive shingle material and having an outlet; a ~~grinder~~ having an inlet to receive shingle material from the staging station and having an outlet; an extruder having an inlet to receive ground material from the grinder and adapted to provide extruded ground material therefrom; and one of a die cutting station and a molding station associated with said extruder for receiving the extruded material and adapted to produce shaped product therefrom.

SS in + out
grinder in + out
extruder in
die out + mold station

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APPL-NO: 09/ 838043 [PALM]
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RELATED-US-APPL-DATA:

Application is a non-provisional-of-provisional application 60/198463, filed April 18, 2000,

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REPRESENTATIVE-FIGURES: 1

ABSTRACT:

Used and manufacturing scrap asphalt shingle material is processed into a fine material comprising smaller sized pieces of shingle material and a relatively high aggregate content. The fine material is finish processed into shaped products adapted to take advantage of the high aggregate content therein. Processing of the fine material includes (i) grinding and heating the aggregate and smaller sized pieces of shingle material into a homogenous mixture, (ii) forming the shaped products via molding with pressure, or extruding and cutting the extruded mixture, and embedding a surface treatment material into the shaped products. The fine material may be produced by an initial process that includes shredding the shingle material into pieces of a maximum size, and separating the shredded material into fine material and course material; such that the fine material comprises smaller sized pieces of shredded material and loose aggregate dislodged from the larger pieces during the shredding process; and the course material comprises the larger flakes from the shredding process wherein the flakes may be forward to finish processing with advantage taken of the larger size and low aggregate content.

[0001] CROSS-REFERENCES TO RELATED APPLICATIONS

[0002] This application claims priority to U.S. Provisional Patent Application S/N 60/198,463, filed Apr. 18, 2000.